UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS
SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
SUFFOLK COUNTY WATER AUTHORITY
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

WATER-RESOURCES INVESTIGATIONS REPORT 85-4321
PLATE 3B--MAGOTHY AQUIFER--EAST

POTENTIOMETRIC SURFACE OF THE MAGOTHY AQUIFER, LONG ISLAND, NEW YORK, IN MARCH 1983

The Magothy aquifer of the Cretaceous Magothy Formation and overlying Matawan Group undifferentiated supplies water for public supply and industrial use in Nassau and Suffolk Counties. The potentiometric-surface altitude is monitored by the U.S. Geological Survey. This map depicts the static water-level measurements taken in March 1983 in observation wells and public-supply wells screened in the Magothy aquifer.

The measurements show the potentiometric-surface altitude to range from 9.8 ft below sea level in eastern Queens County to 83.5 ft above sea level in central Nassau County (sheet 1). The general shape of the potentiometric surface is similar to that of the overlying upper glacial (water-table) aquifer, rising gradually from a depression in the western part of the island to an east-west mound in the central part. In areas where deep channels have been eroded into the Magothy aquifer and filled with glacial deposits, the potentiometric-surface contours were drawn from water levels measured in wells screened deep in these glacial deposits, which are laterally contiguous and hydraulically connected with the Magothy aquifer.

The potentiometric-surface altitude is, in general, 1 to 7 ft lower than in 1979 (Donaldson and Koszalka, 1983), except in central Queens County, where water levels in the depression area have recovered from 28 ft below sea level in 1979 to 10 ft below sea level.

On the north and south forks of eastern Suffolk County (sheet 2), water in the Magothy aquifer is saline except in the central part of the south fork (Nemickas and Koszalka, 1982). The northern limit of the Magothy aquifer in Kings and Queens Counties as depicted here has been revised in accordance with data of Buxton and others (1981); its northern limit in Nassau County has been revised according to Kilburn (1979) and Kilburn and Krulikas (1985).

Most wells shown on this map were measured in March 1983. In comparing the water levels in the Magothy aquifer with the water table (plate 1), also measured in March 1983, the user should verify that the wells in each aquifer were measured at approximately the same time of the month to account for differences due to precipitation. Information on the date and time of water-level measurements is available at the U.S. Geological Survey in Syosset, N.Y.

This work was done in cooperation with the Nassau County Department of Public Works, Suffolk County Department of Health Services, Suffolk County Water Authority, and the New York State Department of Environmental Conservation. Special thanks are extended to the water companies and private industries on Long Island who cooperated in the static water-level measurements.

REFERENCES CITED

Buxton, H. T., Soren, Julian, Posner, Alex, and Shernoff, P. K., 1981, Reconnaissance of the ground-water resources of Kings and Queens Counties, New York: U.S. Geological Survey Open-File Report 81-1186, 59 p.

Donaldson, C. D., and Koszalka, E. J., 1983, Potentiometric surface of the Magothy aquifer, Long Island, New York, in March 1979: U.S. Geological Survey Open-File Report 82-160, 2 sheets.

Kilburn, Chabot, 1979, Hydrogeology of the Town of North Hempstead, Nassau County, Long Island, New York: Long Island Water Resources Bulletin 12, 87 p.

Kilburn, Chabot, and Krulikas, R. K., Hydrogeology and ground-water quality of the northern part of the Town of Oyster Bay, Nassau County, New York, in 1980: U.S. Geological Survey Water-Resources Investigations Report 85-4051 (in press).

Nemickas, Bronius, and Koszalka, E. J., 1982, Geohydrologic appraisal of water resources of the South Fork, Long Island, New York: U.S. Geological Survey Water-Supply 2073, 55 p.

6455 / 37.8 — OBSERVATION WELL AND NUMBER--Prefixes O, N, and S for Queens, Nassau, and Suffolk Counties, respectively, are omitted. Lower number is potentiometric-surface altitude, in feet above or below (-) NGVD of 1929.

10 — LINE OF EQUAL POTENTIOMETRIC-SURFACE ALTITUDE--Shows altitude at which water level would have stood in tightly cased wells. Solid where approximately known; dashed where inferred. Contour interval 10 feet.

INFERRED NORTHERN LIMIT OF MAGOTHY AQUIFER.

Base from U.S. Geological Survey, 1:62,500 and 1:24,000 quadrangles and N.Y.S. Department of Transportation, 1:24,000 quadrangles

Hydrology by Thomas P. Doriski, 1983

POTENTIOMETRIC SURFACE OF THE MAGOTHY AQUIFER, LONG ISLAND, NEW YORK, MARCH 1983